MAJOR CLASSIFICATION INDEX OF ARTICLES

ANALYTICAL METHODS

Determination of Fe(II)/Fe(III) in natural waters 785–790 High temperature supercritical CO2 extractions of geological samples 79–89

ARCHAEOLOGY

Differential diagenesis of Sr in archaeological human dental tissue 687–694 Marbles from Roman Hispania, stable isotope and cathodoluminescence characterization 1469–1493

ENERGY RESOURCES

Petroleum and Natural Gas

Hydrothermal petroleum from lacustrine sedimentary organic matter, East African Rift 355-368

Production of 210Pb from Slochteren Sandstone gas reservoir 1317-1329

Water-rock interaction during CO₂ flooding 265-279

ENVIRONMENTAL GEOCHEMISTRY

Acid production from sulphide minerals using H₂O₂ weathering 235-243

Anthropogenic influence on Pb isotopes of lake sediments 1291-1305

As and Ni in U mill tailings, Saskatchewan 1097-1119

As speciation in pyrite and weathered phases, Mother Lode District, California 1219–1244

Au mobilisation into surface waters and sediments from tailings 629-646

Chemistry and S isotope composition of precipitation, Bologna, Italy 1455–1467

Chemistry of alkaline, Zn-rich waters in a F-Pb mine 1383–1397

Colloid formation and metal transport through two mixing zones affected by AMD 1003-1018

Comparison of geochemistry of Fe-Mn coatings on pebbles and a gastropod in a SW England river 725-735

Contrasting the geochemistry of suspended and deposited sediments in an estuary 753-775

Definition of geochemical baseline in areas of differing geology 647–653

Dissolution of silica and development of concentration patterns in freshwater sediments 425-438

Effect of fulvic acids on sorption of U. Zn, Yb, I and Se 133-139

Effects of pH regulation on release of SO4 from AMD precipitates 27-34

Experimental and in situ study of radiocaesium across the sediment-water interface 833-848

Heavy metal distribution in estuarine sediments, Pearl River, China 567-581

Heavy metal weathering under acid soil conditions 415-423

Hydrogeochemistry and transport of organic contaminants in an urban watershed 901-915

Impact of historical metalworks on chemistry of sediments, a case study 807-817

Interaction between aqueous Cr and layer silicates 1307-1316

Laboratory evaluation of metal release and transport in flooded mine tailings 1245-1263

Metal contamination of soils, Scott Base, Antarctica 513-530

Metal remobilisation following resuspension of estuarine sediments 191-210

Pb isotopes in tree rings as indicators of heavy metal pollution 891–900

Reactive transport of metal contaminants in alluvium 35-49

REE geochemistry to identify sources of stream sediments 1369-1381

Retention of Sr. Cs. Pb and U by bacterial Fe oxides 1035-1042

Solid phase Fe-S geochemistry of a reactive barrier for treatment of mine drainage 1331–1343

Solubility of Ca₆[Al(OH)₆]₂(CrO₄)₃,26H₂O, 5–75°C 1203–1218

Source indicators of humic substances 1019-1033

Speciation of Sb in bisulfide solutions 879-889

The cacite/portlandite phase boundary: enhanced calcite solubility at high pH 327-335

Use of 234U and 238U to identify fertilizer-derived U in the Florida Everglades 369–383 X-ray absorption study of coprecipitation of Tc and Re with mackinawite 347–354

Diagenesis

Amino acid abundances and stereochemistry in hydrothermally altered sediments 1169-1190

Burial diagenesis, simulation in the Wilcox group, Gulf of Mexico 1071-1083

Diagenetic cycling of trace elements in estuarine sediments 551-566

Early diagenetic behaviour of Se in freshwater sediments 1439-1454

Making diagenesis obey thermodynamics and kinetics 295–309

Geochemistry and health

Human and environmental contamination in the Iron Quadrangle, Brazil 181–190 Environmental distribution of Se in the Keshan disease belt, China 385–401 Soil, grain and water chemistry in relation to human Se-deficiency diseases in China 117–132

Groundwater

Aqueous solubility of trichloroethene and tetrachloroethene 501–512

Arsenic release to groundwater, Bangladesh and West Bengal 403-413

Assessing thermal and chemical history of fluids in crystalline rocks by fluid inclusions and isotopes in fracture calcite 1417–1437

Ba/Sr, Ca/Sr and 87Sr/86Sr in soil water and groundwater 311-325

14C dating of groundwater 583-597

Characterization of groundwater humic substances 97-116

Climatic and vegetation conditions and the geochemical and isotopic compositions in the Franconian Albvorland aquifer 1191–1201

Comparison of 4He and 14C ages in simple aquifer systems 1137-1167

Controls on salinization of the Ogallala aquifer, Texas 849-864

Evolution of gas and aqueous fluid in argillaceous rocks in the Swiss Alps 211-234

Fluid characterisation and modelling of water-rock equilibria, Boom clay formation and Rupellian aquifer, Belgium 667–686

Geochemical and B, O and H isotopic constraints on origin of salinity in groundwaters 937-952

Geochemical and isotopic characterisation of the Bathonian and Bajocian aquifer, Caen 791-805

Geochemistry of formation waters in the Po plain, Italy 51-65

Groundwater colloid properties, a global approach 1043–1051

In situ generation of humic and fulvic acids in groundwater 819-832

Origin and mobility of humic colloids in the Gorleben aguifer 171–179

REE, and Nd and Sr isotopes in mineral waters 1345-1367

Residence time indicators in groundwater 737-752

"Rust" contamination of formation waters from producing wells 1527-1533

Sr and Pb isotopes to identify water sources beneath landfill 493–500

Sr isotopes in groundwaters and streams affected by agriculture 599-609

Stable C isotope biogeochemistry in a sand aquifer contaminated with

hydrocarbons 157-169

Transient calcite fracture fillings in a welded tuff 1495-1504

Radioactive waste disposal

Kinetics and mechanisms of simulated British Magnox waste glass dissolution 1399-

Natural analogue of nuclear waste glass in compacted bentonite 141-155

Orthophosphate complexing agents to investigate limitation of alteration kinetics of nuclear glass 1505-1525

Trace metal-humate interactions, experimental determination of stability constants 953–973

Thermal water

Fluid chemistry of the Aqui Terme-Visone geothermal area, Italy 917–935

Influence of water-rock interaction on chemistry of thermal springs, western Canada 439-454

Surface distribution and transport of Al in the Te Kopia geothermal field, New Zealand 1121-1136

Water and gas geochemistry of the Euganean and Berican thermal district, Italy 455-457

Weathering

Abiological formation of formic acid in nature 91-95

Chemical dynamics and weathering rate of a carbonate basin 67–77

Early weathering of Pd-Au in lateritic conditions 245–263

Impact of N-fertilizers on natural weathering-erosion and fluvial transport 865-878

GENERAL GEOCHEMISTRY

Mathematical

Numerical analysis of hydrogeochemical data: a case study 1053–1067

MINERAL RESOURCES

Hydrothermal alteration of felsic volcanic rocks associated with massive sulphide deposits 1265–1290

Native Au in mineral precipitates from high temperature volcanic gases 337–346 REE patterns in waters associated with Zn-Pb massive sulphide deposits 695–723 Short-chain carboxylates in fluid inclusions in minerals 13–25

Exploration

Methane-rich fluid inclusions in Pb-Zn-Ag deposit, use in exploration 1–12 Regional geochemical reconnaissance of the Cordillera Occidental, Ecuador 531–550

MODELLING

Aquifer disposal of acid gases, modelling water-rock interaction 1085–1095
Experimental modelling of Pt sorption on organic matter 777–784
Geochemical modelling to predict As concentrations in pit lake 475–492
Modelling Hg vapour transport in an ancient hydrothermal system 281–294
Multivariate modelling for discrimination of hydrocarbon source rocks 611–627
Process model of natural attenuation in drainage from historic mining district 655–666
Trace metal-humate interactions, the "conservative roof" model and its applications 975–1001

OTHER TOPICS

Erratum

1069

SUBJECT INDEX

Acid mine drainage 1003

Fe(III) precipitates in 27

remediation of 27, 1331

Acid, production from sulfide mineral weathering 235

Acid volatile sulfide

in precipitates from AMD treatment 1331

in resuspended sediment 191

Acqui Terme-Visone geothermal area, Piemonte, Italy 917

Ag

in lake sediment 807

in nuclear glass 1505

in pyrite 1219

in river water 629

in soil 281, 513

in stream sediment 531, 629, 807

mobility during lateritic weathering 245

Al

in lake sediment 807

in mine drainage 655, 1003

in nuclear glass 1399, 1505

in nuclear glass leachate 1399

in pit lake waters 475

in precipitates from AMD treatment 1331

in rain 311

in river water 629, 1003

in snow 311

in stream sediment 531, 807

in surface water 695

in tailings 1097, 1245

in thermal water 1121

in vegetation 1121

mobility in geothermal systems 1121

Alberta Basin, Western Canada 1085, 1527

Alberta, Canada 67, 455

Allen River, Cornwall, England, U.K 725

Alluvium, transport of contaminant metals in 35

Almeria, Spain 1469

Alto Guadalentin aquifer, SE Spain 1053

Am, humate complex 975

Amino acids, in hydrothermally altered sediments 1169

Anacosta River basin, U.S.A. 901

Antarctica, Scott Base 513

contamination of 513

Antskog, Finland 807

Ar, in thermal gas 455

⁴⁰Ar, in thermal gas 455

Arizona, U.S.A. 35

As

human health problems of 181, 403

in Fe oxyhydroxides 403

in gas reservoir rocks 1317 in goethite 1219 in groundwater 403 in jarosite 1219 in lake sediment 807 in pit lake waters 475 in pore water 191 in pyrite 1219 in reservoir sediment 1219 in reservoir waters 1219 in resuspended sediment 191 in sediment 181, 403 in soil 181, 281, 513 in stream sediment 531, 807 in surface water 181 in tailings 181, 1097 in urine 181 in volcanic gas 337 sorption of 475

Äspö, Sweden 1043

Au

in pyrite 1219
in river water 629
in soil 281
in stream sediment 531, 629
in volcanic gas 337
mining, Brazil 181, 245
contamination from 181
mobility during lateritic weathering 245
mobility from tailings 629

Australia

Duggald River mineral deposit, Queensland 1 La Trobe Valley, Victoria 1019 Myall Lake, New South Wales 1019 Swan River, W. Australia 551

B

in groundwater 493, 937 in nuclear glass 1399, 1505 in nuclear glass leachate 1399 in tailings 1097 in thermal water 917 in volcanic gas 337

Ba

in gas reservoir rocks 1317 in groundwater 311, 737 in nuclear glass 1399, 1505 in rain 311 in river water 311 in snow 311 in soil 281

in stream sediment 531 in stream water 311 in tailings 1097 in volcanic gas 337 Bad Säckingen spring, Switzerland 1043 Banded Iron Formation 245 Banff National Park, Alberta, Canada 67 Bangladesh 403 Bathonian and Bajocian aquifer, Caen, N France 791 Bathurst Mining Camp, New Brunswick, Canada 695 Be, in tailings 1097 Belgium, Mol 667 Betic Cordillera, Spain 281, 1053 in pyrite 1219 in stream sediment 531 in tailings 1097 Blackwater River, Surrey/Hampshire, England, U.K. 425 Bologna, Italy 1455 Boso Peninsula, Japan 141 Bow River, Alberta, Canada 67 in groundwater 51, 141, 667, 737, 785, 849, 937 in pore water 667 in soil 281 Brazil, Minas Gerais 181, 245, 1043 Brine, origin of in groundwater 51 British Columbia, Canada 439, 753 C in gas reservoir rocks 1317 in groundwater 97, 157, 171, 493, 583, 807, 1043, 1191 in hydrothermally altered sediment 1160 in resuspended sediment 191 13C in calcite 1417, 1495 in fluid inclusions 211 in groundwater 51, 157, 583, 667, 737, 791, 807, 1191 in marble 1469 in pore water 667 in thermal gas 455 in thermal water 439 140 dating of calcite 1495 dating of groundwater 583, 1137, 1191 in groundwater humic substances 97 Ca humate complex 953, 975 in clay 647 in fertilizer 599

1383

in groundwater 51, 97, 141, 157, 311, 403, 599, 667, 737, 791, 849, 937, 1043, 1053,

in humus 647

in lake sediment 807

in mine drainage 655, 1003, 1383

in nuclear glass 1505

in peat 647

in pit lake waters 475

in pore water 667

in precipitates from AMD treatment 1331

in precipitation 1455

in rain 311

in river water 67, 311, 629, 865, 1003

in snow 311

in soil 385, 647

in soil water 311

in stream sediment 531, 647, 807

in surface water 695

in tailings 1097, 1245

in thermal water 439, 455, 917

in till 647

in volcanic gas 337

Caen, N. France 791

Calcite

for assessing past thermal and fluid history of rock formations 1417 influence on porosity 1495

solubility in KOH 327

California, U.S.A. 1219

Canada

Alberta 67, 439

Alberta Basin 1085, 1527

British Columbia 439, 753

Manitoba 1043

New Brunswick 191, 629, 695

Ontario 1245, 1331, 1439

Quebec 191

Saguenay Fjord 191

Saskatchewan 1043, 1097

Yukon Territory 439

Cape Kalamba, Lake Tanganyika, Democratic Republic of the Congo 355 Cathodoluminescence, of marble 1469

Cd

in lake sediment 807

in nuclear glass 1505

in soil 281, 513

in stream sediment 531, 807

in surface water 181

in tailings 1097

in urine 181

in volcanic gas 337

Ce

in estuary sediments 551

in groundwater 695

in mineral water 1345

in nuclear glass 1399, 1505 in stream sediment 1369 in surface water 695

Celtis Australis 891

Cf, humate complex 975

CH₄

in fluid inclusions 1, 211 in groundwater 157 in thermal gas 455

Chernobyl 833

Chesapeake Bay, U.S.A. 901

China

Enshi District, Hubei Province 117 Pearl River, S.China 567 Zhangjiakou District, Hebai Province 385

Chloritization, chemistry of 1265 Chromate analogue of ettringite

characterization of 1203 solubility of 1203 synthesis of 1203

Cigar Lake, Saskatchewan, Canada 1043

Cl

in fluid inclusions 13
in groundwater 51, 97, 141, 171, 403, 599, 667, 695, 737, 791, 849, 937, 1053, 1191, 1393
in mine drainage 655, 1393
in pore water 667
in precipitation 1455
in river water 67, 629, 865
in surface water 695
in tailings 1097
in thermal water 439, 455, 917
in volcanic gas 337

Co

humate complex 953, 975 in estuary sediment 551, 567 in formation water 1527 in gas reservoir rocks 1317 in lake sediment 807 in nuclear glass 1505 in pyrite 1219 in soil 281 in stream sediment 531, 807 in tailings 1097 in volcanic gas 337

CO, in thermal gas 455

CO2

as extractant of hydrocarbons from geological samples 79 flooding of reservoir rocks 265 in fluid inclusions 1 in groundwater 1053 in natural gas 1027 in thermal gas 455

CO₃, in groundwater 791 Colima volcano, Mexico 337 Colloids, in groundwater 171 Colorado, U.S.A. 1003, 1495 Cordillera Occidental, Ecuador 531 Cornwall, England, U.K. 725 Cr

in formation water 1527 in lake sediment 807 in nuclear glass 1399, 1505 in reservoir sediment 1219 in soil 281, 513 in stream sediment 531, 807 in tailings 1097 in volcanic gas 337 sorption, by clays 1307

Cr(VI), reduction by Fe containing phyllosilicates 1307 Cs

in groundwater 737, 1035 in nuclear glass 1399, 1505 radioactive, diffusion in sediments 833 sorption by bacterial Fe oxide 1035

134Cs, in lake sediment 833

137Cs

in lake sediment 833 in lake water 833

Cu

in clay 647
in estuary sediment 551, 567, 753
in gas reservoir rocks 1317
in groundwater 1383
in humus 647
in lake sediment 807
in mine drainage 655, 1003, 1383
in peat 647
in pyrite 1219
in river water 629, 1003
in soil 281, 385, 513, 647
in stream sediment 531, 647, 807
in tailings 1097
in thermal water 439
in till 647
in volcanic gas 337

in volcanic gas 337 Cumbria, England, U.K. 833

Democratic Republic of the Congo 355 Diagenesis

> of archaeological human teeth and bones 687 of bituminous sandstones 1317 of estuary sediments 551 of freshwater sediments 1439 of sandstones 295, 1073

modelling 295, 1073 Disposal, of acid wastes 1085 Dy

> in groundwater 695 in mineral water 1345 in stream sediment 1369 in surface water 695

East African Rift 355
East Midlands, England, U. K. 737
Ecuador, Cordillera Occidental 531
England

Cornwall 725 County Durham 1383 Cumbria 833 East Midlands 737 Hampshire 425 Surrey 425 Yorkshire 425

Enshi District, Hubai, China 117 Er

> in groundwater 695 in mineral water 1345 in stream sediment 1369 in surface water 695

in surface water 695
Errarum 1069
Esthwaite Water, Cumbria, England, U.K. 833

humate complex 953, 975 in groundwater 695 in mineral water 1345 in stream sediment 1369 in surface water 695

Everglades, Florida, U.S.A. 369

F in fluid inclusions 13 in groundwater 737, 791 in thermal water 917 in volcanic gas 337

in formation water 1527 in groundwater 51, 141, 157, 311, 403, 667, 1383 in lake sediment 807, 1439 in mine drainage 655, 1003, 1383 in nuclear glass 1399, 1505 in nuclear glass leachate 1399 in pit lake waters 475 in pore water 191, 667, 1439 in precipitates from AMD treatment 1331 in rain 311 in reservoir sediment 1219 in resuspended sediment 191

in river water 311, 629, 1003

in snow 311

in soil 385, 513

in stream sediment 531, 807

in surface water 695

in tailings 1097, 1245

in thermal water 439

in volcanic gas 337

release from tailings, laboratory simulation 1245

Fe(II)/Fe(III), determination in water 785

Fe/Mn coatings

on gastropod shell 725

on stream pebbles 725

Ferrozine, for determination of Fe in water 785

Finland 647

Antskog 807

Olkiluoto research site 1417

Firenze, Italy 891

Florida, U.S.A. 369

Fluid inclusions

CH4 in 1, 211

Cl⁻ in 13

 CO_2 in 1

F- in 13

hydrocarbons in 211

in calcite 1417

Short-chain carboxylates in 13

 SO_4^{2-} in 13

use in mineral exploration 1

Formation water, contamination of in producing wells 1527

Formic acid, formation on rocks 91

France

Caen 791

Garonne River 865

Massif Central 1345

Thau Lake 1291

The Alps 1469

The Pyrenees 1469

Franconian Albvorland aguifer, Germany 97, 1191

Fraser River, British Columbia, Canada 753

Fuhrberg aquifer, Germany 97, 819

Fulvic acid, effect on sorption 133

Ga, in stream sediment 531

Gabon, Oklo 1043

Garonne River, France 865

Gd

in groundwater 695

in mineral water 1345

in stream sediment 1369

in surface water 695

Geochemical baseline, definition 647 Geochemical exploration 531 Geochemical reconnaissance 531 Germany 97, 171, 583, 819, 937, 1043, 1191 Getchell mine, Humboldt County, Nevada, U.S.A. 475 Gorleben aquifer, Germany 97, 171, 583, 819, 1043 Greece 1469 Grimsel Test Site, Switzerland 1043 Groundwater colloids in 171, 1043 contamination by agriculture 599 contamination by landfill leachate 493 dating 583, 1137 evolution of 791, 937 humic and fulvic acids in 819 humic substances in 97 hydrocarbon contamination of 157 mineralised 1345 modelling water-rock equilibria in 667 numerical analysis of chemical data for 1053 origin of brines in 51 residence time indicators in 737 salinization of 849 thermal 439, 455, 917 thermal and chemical history of 1417 Gulf of Mexico basin 1071 H₂, in thermal gas 455 ^{2}H in groundwater 51, 211, 583, 667, 737, 791, 849, 937, 1383 in fluid inclusions 211 in mine drainage 1383 in pore water 667 in thermal water 439, 455, 917 ³H, in groundwater 97, 583, 667, 819 Hampshire, England, U.K. 425 HBO3, in groundwater 141 HCO₂ in groundwater 97, 141, 403, 695, 737, 791, 849, 937, 1053 in pit lake waters 475 in precipitation 1455 in river water 67, 629, 865 in surface water 695 in thermal water 439 He, in thermal gas 455 ³He, in thermal gas 455 4He, dating of groundwater 1137 Hebei Province, China 385 Hg as pathfinder for Au 281 in atmosphere 281

in soil 281

in soil gas 281 in stream sediment 531 in surface water 181 in urine 181 mobilisation in old mining areas 281 Ho in groundwater 695 in mineral water 1345 in stream sediment 1369 in surface water 695 HS⁻, in groundwater 818 H2S in groundwater 819 in natural gas 1527 in thermal gas 455 in thermal water 439 Hubei Province, China 117 Humic substances, characterisation of 1019 Hydrocarbons in fluid inclusions 211 in groundwater 157 in lake sediments 355 in source rocks 611 in thermal gas 455 hydrothermal 355 speciation of in geological samples 79 Hydrothermally altered sediments, amino acids in 1169 I in groundwater 51, 141, 737 sorption of 133 Iberian Pyrite Belt, SW Spain 1265 India, West Bengal 403 Iron Quadrangle, Minas Gerais, Brazil 181 Isotopes Ar 455 B 937 C 51, 97, 157, 211, 439, 455, 583, 667, 737, 791, 819, 1137, 1191, 1417, 1469, 1495 H 51, 97, 211, 439, 455, 583, 667, 737, 791, 819, 849, 917, 937, 1383 He 455, 1137 O 51, 211, 439, 455, 583, 667, 737, 791, 849, 917, 937, 1191, 1383, 1417, 1469, 1495 Nd 1345 Pb 493, 891, 1097, 1317 Ra 1317 S 439, 667, 791, 1455 Sr 51, 311, 493, 599, 687, 849, 1345 Th 1097 U 369, 1317 Italy, 1469

Bologna 1455

Euganean and Berician thermal district 455

Firenze 891 Piemonte 917 Po Valley 51 The Alps 1469

Japan, Boso Peninsula 141 Juan de Fuca Ridge, N. Pacific Ocean 1169

K

in fertilizer 599
in groundwater 51, 97, 141, 311, 403, 599, 667, 737, 791, 849, 937, 1043, 1053, 1383
in lake sediment 807
in mine drainage 1383
in pit lake waters 475
in pore water 667
in rain 311

in rain 311

in river water 311, 629, 865

in snow 311

in soil water 311 in stream sediment 531, 807

in tailings 1097

in thermal water 439, 455, 917

in volcanic gas 337

Kalix River, N. Sweden 311

Kentucky, U.S.A. 27

Keshan Disease 117, 385

La

in estuary sediment 551 in groundwater 695 in mineral water 1345 in nuclear glass 1399, 1505 in stream sediment 531, 1369 in surface water 695

Lake Tanganyika, East African Rift, 355

Landfill leachate, contamination of groundwater 493

Leuggern bore hole, Switzerland 1043

Li

in groundwater 667, 737, 1137 in nuclear glass 1399, 1505 in nuclear glass leachate 1399 in pore water 667 in stream sediment 531 in thermal water 439, 917

Lithuania 647

Locust Grove, Maryland, U.S.A. 599

Lu

in groundwater 695 in mineral water 1345 in stream sediment 1369 in surface water 695 Manitoba, Canada 1043 Marble, identification of source 1469 Maryland, U.S.A. 599, 901 Massif Central, France 1345 Massive sulphide, hydrothermal alteration of 1265 Menzenchwand U mine, Switzerland 1043 Mexico, Colima volcano 337

Mg

in clay 647 in fertilizer 599 in groundwater 51, 97, 141, 311, 403, 599, 667, 695, 737, 791, 849, 937, 1043, 1053, 1383 in humus 647 in lake sediment 807 in mine drainage 655, 1003, 1383

in nuclear glass 1399 in nuclear glass leachate 1399

in peat 647 in pit lake waters 475

in pore water 667 in precipitation 1455 in rain 311

in river water 67, 311, 629, 865, 1003 in snow 311

in soil 385, 647 in soil water 311

in stream sediment 531, 647, 807

in surface water 695 in tailings 1097

in thermal water 439, 455, 917

in till 647

in volcanic gas 337 Michigan, U.S.A. 157

Minas Gerais, Brazil 181, 245, 1043

Mineralisation

Ag-Pb-Zn 1 Au 181, 245, 337, 1219

Ba-Ag 281 F-Pb 1383

Massive sulphide 629, 695, 807, 1265

Precious metal 281

Mn

in estuary sediment 551 in formation water 1527 in groundwater 403, 667, 737 in lake sediment 807, 1439 in mine drainage 1003 in nuclear glass 1505 in pore water 191, 667, 1439 in pyrite 1219 in reservoir sediment 1219 in resuspended sediment 191 in river water 629, 1003

in soil 385, 513 in stream sediment 531, 807 in surface water 695 in tailings 1097 in thermal water 439 in volcanic gas 337

Mn/Fe coatings

on gastropod shell 725 on stream pebbles 725

Mo

in groundwater 737 in nuclear glass 1399, 1505 in soil 281 in stream sediment 531 in tailings 1097 in volcanic gas 337

Modelling

Au precipitation from volcanic gas 337 chemical evolution of pit lake water 475 contaminant metal transport in alluvium 35 diagenesis 295
Hg vapour transport 281 metal-humate interaction 975 multivariate, to discriminate hydrocarbon source rocks 611 natural attenuation in mine drainage 655
Si mobility in river sediments 425 sources of river water 311 water-rock equilibria 667 water-rock interaction with acid wastes 1085

Morpo de Ferro, Minas Gerais, Brazil 1043 Mother Lode Gold District, California, U.S.A. 1219 Munich aquifer, Germany 97, 819 Murray Brook massive sulphide deposit, New Brunswick, Canada 629

N

impact on weathering 865 in fertilizer 599, 865 in hydrothermally altered sediment 1169 N₂, in thermal gas 455

Na

in fertilizer 599
in groundwater 51, 97, 141, 311, 403,599, 667, 737, 791, 849, 937, 1043, 1053, 1383
in mine drainage 1383
in nuclear glass 1399, 1505
in nuclear glass leachate 1399
in pit lake waters 475
in pore water 667
in precipitation 1455
in rain 311
in river water 67, 311, 629, 865
in snow 311
in soil water 311

in stream sediment 531 in tailings 1097

in thermal water 439, 455, 917

in volcanic gas 337

Namibia 1137

Nb, in stream sediment 531

Nd

in groundwater 695 in mineral water 1345 in nuclear glass 1399, 1505 in stream sediment 1369 in surface water 695

147Nd, in mineral water 1345

Ne, in thermal gas 455

Nevada, U.S.A. 475, 1043

New Brunswick, Canada 191, 629, 695

New Mexico, U.S.A. 655, 1137

New South Wales, Australia 1019

New York, U.S.A. 493

New Zealand, Taupo Volcanic Zone 1121

NH₄

in groundwater 493 in precipitation 1455

Ni

humate complex 953, 975

in clay 647

in estuary sediment 551, 567

in formation water 1527

in gas reservoir rocks 1317

in humus 647

in lake sediment 807

in nuclear glass 1399, 1505

in peat 647

in pyrite 1219

in reservoir sediment 1219

in soil 281, 513, 647

in stream sediment 531, 647, 807

in tailings 1097

in till 647

in volcanic gas 337

NO3

in groundwater 157, 403, 599, 737, 791, 849, 1053, 1191

in precipitation 1455

in river water 629, 865

in thermal water 439, 917

North Pennine Orefield, England, U.K. 1383

Norway 295, 611, 1245

Nova Lima, Minas Gerais, Brazil 181

Np, humate complex 953, 975

Nuclear waste

disposal 1417

glass

alteration of 1505 leaching of 141, 1399, 1505 natural analogue 141 management 327 repository 953 Numerical analysis, of hydrogeochemical data 1053

 O_2

in groundwater 157, 819 in pit lake waters 475

180

geothermometry 1417 in calcite 1417, 1495 in fluid inclusions 211 in groundwater 51, 211, 583, 667, 737, 791, 849, 937, 1191, 1383 in marble 1469 in mine drainage 1383 in pore water 667 in thermal water 439, 455, 917

Ogallala aquifer, Texas, U.S.A. 849 Oklo, Gabon 1043 Olkiluoto research site, Finland 1417 Ontario, Canada 1245, 1331, 1439 Organochlorine pesticides 901

P

in clay 647 in humus 647 in nuclear glass 1399, 1505 in peat 647 in soil 647 in stream sediment 647 in tailings 1097 in till 647

Pb

in estuary sediment 551, 567, 753 in Fe/Mn coatings 725 in gas reservoir rocks 1317 in groundwater 1035, 1383 in lake sediment 807, 1291 in mine drainage 655, 1003, 1383 in pyrite 1219 in river water 629, 1003 in soil 281, 513 in stream sediment 531, 807 in tailings 1097 in tree rings 891 in urban aerosols 891 in volcanic gas 337 sorption by bacterial Fe oxide 1035

in groundwater 493

in lake sediment 1291 in tree rings 891

in urban aerosols 891

²⁰⁶Pb/²⁰⁷Pb, to identify sources of Pb 1291

207Pb

in groundwater 493 in lake sediment 1291 in tree rings 891 in urban aerosols 891

208Pb

in groundwater 493 in lake sediment 1291 in tree rings 891 in urban aerosols 891

210Pb

in gas reservoir rocks 1317 in tailings 1097

Pd, mobility during lateritic weathering 245

Pearl River, S. China 567

Pecos mine, New Mexico, U.S.A 655

Pecos River, New Mexico, U.S.A. 655 Petroleum, hydrothermal 355

Piemonte, Italy 917

Pinal Creek, Arizona. U.S.A.35

PO₄

in groundwater 819 in surface water 695

Po, in tailings 1097

Polychlorinated biphenols 901

Polycyclic aromatic hydrocarbons 901 Potamopyrgus (Hydrobia) jenkinsi 725

Potomac River, U.S.A. 901

Po Valley, Italy 51

Pr

in groundwater 695 in mineral water 1345 in nuclear glass 1399, 1505 in surface water 695

Pt

accumulation in C-bearing rocks 777 sorption on organic matter 777

Pyrite, in precipitates from AMD treatment 1331

Quebec, Canada 191 Queensland, Australia 1

Rabbit Lake U mine, Saskatchewan, Canada 1097 Ra

in gas reservoir rocks 1317 n tailings 1097

Rb

in groundwater 737

in nuclear glass 1399 Re, coprecipitation with FeS 347 Ru, in nuclear glass 1399 Rupelian aquifer, Mol, Belgium 667 S in clay 647 in gas reservoir rocks 1317 in groundwater 311 in humus 647 in lake sediment 1439 in peat 647 in precipitates from AMD treatment 1331 in rain 311 in river water 311 in snow 311 in soil 647 in stream sediment 647 in tailings 1245 in till 647 S²⁻, in groundwater 157 348 in groundwater 667, 791 in precipitation 1455 in thermal water 439 Saguenay Fjord, Canada 191 San Juan Basin, New Mexico, U.S.A. 1137 Santa Barbara, Minas Gerais Brazil 181 Saskatchewan, Canada 1043, 1095 Sb in nuclear glass 1505 in pyrite 1219 in soil 281 in stream sediment 531 in tailings 1097 in volcanic gas 337 speciation in alkaline solution 879 transport in solution 879 Sc in soil 281 in stream sediment 531 Scott Base, Antarctica 513 Se human deficiency diseases 117, 385 human toxicity diseases 117 in drinking water 117, 385 in grain 117, 385 in human hair 117, 385 in lake sediment 1439 in pore water 1439

> in soil 117, 385 in volcanic gas 337

sorption 133, 1439 Sericitization, chemistry of 1265 Short chain carboxylates, in fluid inclusions 13 in clay 647 in groundwater 311, 737, 849 in humus 647 in mine drainage 1003 in nuclear glass 1399, 1505 in nuclear glass leachate 1399 in peat 647 in pit lake waters 475 in pore water 425 in rain 311 in river water 311, 629, 865, 1003 in snow 311 in soil 647 in soil water 311 in stream sediment 647 in surface water 695 in tailings 1097, 1245 in till 647 in thermal water 439, 455, 917, 1121 in volcanic gas 337 Silverton, Colorado, U.S.A. 1003 Sm in groundwater 695 in mineral water 1345 in nuclear glass 1399 in stream sediment 1369 in surface water 695

Sn

in nuclear glass 1505 in soil 281

in stream sediment 531

Snowshoe Mountain, Colorado, U.S.A. 1495 SO4

> desorption from Fe(III) precipitates in AMD 27 in fluid inclusions 13 in groundwater 51, 97, 141, 157, 171, 403, 667, 695, 737, 791, 819, 849, 937, 1053,

1191, 1383

in mine drainage 655,1003, 1383

in pit lake waters 475 in pore water 667 in precipitation 1455

in river water 67, 629, 865, 1003

in surface water 695 in tailings 1097

in thermal water 439, 455, 917

in volcanic gas 337

release from tailings, laboratory simulation 1245

South China Sea 567

Spain Almeria 1469 Betic Cordillera 281, 1053 Iberian Pyrite Belt 1265 Sr in fertilizer 599 in groundwater 51,311, 493, 599, 737, 849, 1035 in mineral water 1345 in nuclear glass 1399, 1505 in rain 311 in river water 311 in snow 311 in soil water 311 in stream sediment 531 in tailings 1097 in thermal water 439 in volcanic gas 337 sorption by bacterial Fe oxide 1035 87 Sr in archaeological human teeth 687 in fertilizer 599 in groundwater 51, 311, 493, 599, 849 in mineral water 1345 in river water 311 in soil water 311 Sri Lanka, Walawe Ganga Basin 1369 Staten Island, New York, U.S.A. 493 Sudbury, Ontario, Canada 1439 Surrey, England, U. K. 425 Swale River, N. Yorkshire, England, U.K. 425 Swan River, W. Australia 551 Sweden, 415 Äspö 1043 Kalix River 311 Stråssa Mine 1035 Switzerland 937, 1043 The Alps 211 Ta, in stream sediment 531 Taupo Volcanic Zone, New Zealand 1121 Tb in groundwater 695 in mineral water 1345 in surface water 695 Tc coprecipitation with FeS 347

Te
in nuclear glass 1505
in stream sediment 531
Te Kopia geothermal field, Taupo, New Zealand 1121
Tetrachloroethane

in groundwater 501 solubility 501

Texas, U.S.A. 849, 1137

Th

in estuary sediment 551 in gas reservoir rocks 1317 in groundwater 1137 in lake sediment 1291

in nuclear glass 1505 ²³⁰Th, in tailings 1097

Thau Lake, France 1291

Thermal gases, chemistry of 455

Thermal waters, Chemistry of 439, 455, 917

Ti

in stream sediment 531 in tailings 1097 in thermal waters 1121 in volcanic gas 337

Tl, in volcanic gas 337

Tm

in groundwater 695 in mineral water 1345 in surface water 695

Transitgas Tunnel, Switzerland 1043

Trichloroethane

in groundwater 501 solubility 501

Turkey 1469

U

humate complex 953, 975
in estuary sediment 551
in fertiliser 369
in gas reservoir rocks 1317
in groundwater 1035, 1137
in nuclear glass 1505
in peat 369
in soil 281, 369
in surface water 369
in tailings 1097
sorption 133
sorption by bacterial Fe oxide 1035

234U

in fertiliser 369
in peat 369
in soil 369
in surface water 369
to trace agricultural contamination 369
U-Pb dating, of gas reservoir rocks 1317
United Kingdom, England 425, 725, 737, 1383
U.S.A.

Arizona 35

California 1219
Colorado 1003, 1495
Florida 369
Kentucky 27
Maryland 599, 901
Michigan 157
Nevada 475, 1043
New Mexico 655, 1137
Staten Island, New York 493
Texas 849, 1137
Washington, DC 901
Wyoming 265

V

in clay 647 in estuary sediment 551 in formation water 1527 in gas reservoir rocks 1317 in humus 647 in lake sediment 807 in peat 647 in soil 281, 385, 647 in stream sediment 531, 647, 807 in tailings 1097 in till 647 in volcanic gas 337

Victoria, Australia 1019

W, in stream sediment 531
Walawe Ganga Basin, Sri Lanka 1369
Wallenberg, The Alps, Switzerland 211
Washington, DC, U.S.A. 901
Water-rock interaction, 1345
in carbonate basin 67
in reservoir rocks during CO2 flooding 265
in thermal springs 439
with acid wastes 1085

Weardale, County Durham, England, U.K. 1383 Weathering

> impact of N-fertilizers on 865 of heavy minerals in soil 415 of sulfide minerals 235 rates of, in carbonate basin 67 role of formic acid in 91

West Bengal, India 403 Whiteshell Research Area, Manitoba, Canada 1043 Wyoming, U.S.A. 265

Y

in nuclear glass 1399, 1505 in stream sediment 531

Yb

in groundwater 695 in mineral water 1345 in stream sediment 1369 in surface water 695 sorption of 133

Yorkshire, England, U.K. 425 Yucca Mountain, Nevada, U.S.A. 1043 Yukon Territory, Canada 439

Zhangjiakou District, Hebai Province, China 385 Zn

in clay 647 in estuary sediment 551, 567, 753 in Fe/Mn coatings 725 in groundwater 1383 in humus 647 in lake sediment 807 in mine drainage 655, 1003, 1383 in nuclear glass 1505 in peat 647 in pyrite 1219 in reservoir sediment 1219 in river water 629, 1003 in soil 281, 385, 513, 647 in stream sediment 531, 647, 807 in tailings 1097, 1245 in thermal water 439 in till 647 in volcanic gas 337 release from tailings, laboratory simulation 1245

Zr

in nuclear glass 1399, 1505 in stream sediment 531 in tailings 1097 Zurzach well, Switzerland 1043

sorption of 133

AUTHOR INDEX (Erratum-E)

Aboul-Kassim T. A. T. 355 Abraitis P.K. 1399 Acitimbay V. 531 Adeney J. A. 551 Africano F. 337 Ahmed K. M. 403 Aines R. D. 501 Andersson E. 1169 Andersson P. S. 311 Arai T. 141 Artinger R. 97, 171, 583, 819, 1191 Aspden J. A. 531 Aström M. 807 Atekwana E. A. 157 Atkins B. 347 Aubé B. 1245 Azaroual M. 1345 Baez N. 531 Banner J. L. 849 Barbecot F. 791 Barcelona M. J. 157 Barreiro B. 687 Barth S. R. 937 Bassett R. L. 35 Beaucaire C. 667 Belzille N. 1439 Bencala K. E. 1003 Bencini A. 1455 Bendell-Young L. I. 753 Benner S. G. 1331 Berger A. C. 655 Bernard A. 337 Bethke C. M. 655 Bickford M. E. 493 Bird D. K. 1219 Bjørkum P. A. 295 Blanc P. 1469 Blomqvist R. 1417 Blowes D. W. 1331 Blyth A. 1417 B-hlke J. K. 599 Bonaria V. 917 Borba R. P. 181 Boyle D. R. 629, 695 Brach M. 1345 Brigatti M. F. 1307 Brown J. G. 35 Browne P. R. L. 1121 Buckau G. 97, 171, 583, 819, 1191 Budd P. 687 Burgess W. G. 403 Caliro S. 455

Campbell I. B. 513

Castro M. C. 1137

Cerœn J. C. 1053 Chandrajith R. 1369 Charnock J. M. 347, 879 Chen Y.-W. 1439 Chiarle M. 51 Claridge G. G. C. 513 Clauer N. 865, 1291 Cocherie A. 1345 Coles B. J. 567, 725 Colin F. 245 Collison D. 347 Comans R. N. J. 833 Conti A. 51 Cortecci G. 1455 Cruz E. 531 Davies G. R. 891 Degueldre C. 1043 Denison F. H. 425 Deschamps E. 181 Dever L. 791 Diaz D. 79 Dibley M. J. 501 Dinelli E. 1455 Dissanyake C. B. 1369 Dollhope D. J. 235 Donahue R. 1097 Douglas G. B. 551 Dunkley P. N. 531 Dunn T. L. 265 Edmunds W. M. 737 Elliot T. 891 Elliott W. C. 27 Fagan R. 327 Fang J. 157 Ferris F. G. 1035 Figueiredo B. R. 181 Font X. 281 Fordyce F. M. 117 Fouillac Ch. 1345 Foster G. D. 901 Franchini G. 1307 Frape S. 1417 Frenzel B. 1191 Fritz P. 97, 171, 583, 819, 1191 Fryar A. E. 849 Furton K. G. 79 Gabrio T. 181 Gaibor A. 531 Gavilanes J.-C. 337 Ge X. 385 Geyer S. 97, 171, 583, 819, 1191 Gherardi F. 455 Gibert E. 791 Gin S. 1505

Author Index

Glaus M. A. 953, 975 Glynn P. D. 35 Goodfellow W. D. 629, 695 Goodyear K. L. 725 Grasby S. E. 67, 439, 1069 (E) Green K. A. 117, 385 Gregorauskiene V. 647 Gruessner B. 901 Guangdi Z. 117 Guerrot C. 1345 Guidi M. 917, 1455 Gunter W. D. 1085 Hall G. E. M. 629, 695 Hallberg R. O. 1035 Hanna J. V. 1019 Harrison W. J. 1071 Hartog F.A. 1317 Helz G. R. 879 Hendry M. J. 1097 Herbert R. B. Jr. 1331 Heymans M. J. 1495 Hitchon B. 1527 Hilton J. 833 Hoch A. R. 1495 Holm N. G. 1169 Horan M. 599 House W. A. 425 Hummel W. 953, 975 Hunter K. 758 Hunziker, J. C. 917 Hutcheon I. 67, 439, 1069 (E), 1085 Inglett P. W. 785 Ingri J. 295 Inskeep W. P. 235 Ireland D. G. 833 Jaffé R. 79 Jégou C. 1505 Jennings S. R. 235 Jiménez-Espinosa R. 1053 Jinzhou D. 133 Johnson C. C. 385 Johnson W. D. 1019 Kamei G. 141 Kim J. I. 97, 181, 583, 819, 1043, 1191 Kimball B. A. 1003 Knauss K. G. 501 Krishnamurthy R. V. 157 Krouse H. R. 439, 1069 (E) Krumhansi J. L. 655 Kvalheim O. M. 611 Kyz'mina T. V. 777 Laaksoharju M. 1043 Lafargue E. 79 Lancelot J. R. 1291 Land M. 311 Landine P. 1097 Lång L.-O. 415

Lapuente M. P. 1469 Lechler P. 475 Leif R. N. 501 Leybourne M. I. 629, 695 Li X. 567 Li Y. S. 567 Likhoidov G. G. 777 Liu J. 13 Liu X. 385 Livens F. R. 347, 1399 Lopez E. 531 Louvat D. 667 Lu X. Q. 1019 Lugli C. 1307 Lyvén B. 1035 Magro G. 455 Marini L. 917 Marlin C. 791 Martin R. 1121 Martinelli G. 51 Martinez-Frias J. 281 Matschullat J. 181 Mazurek M. 211 McArthur J. M. 403 McNeill S. 725 Medici L. 1307 Mehta S. 849 Melfi A. J. 245 Mew D. A. 501 Miekeley N. 1043 Mizuno T. 91 Monna F. 1291 Monteith J. E. 1399 Montgomery J. 687 Mosselmans J. F. W. 879 Motellier S. 667 Mucci A. 191 Murphy W. M. 295 Nadeau P. H. 295 Nahon D. 245 Narnov G. A. 777 Navarro-Flores A. 281 Négrel Ph. 1345 Nickson R. T. 403 Nissinen P. 1417 Nolan L. 833 Nylund K. 807 O'Day P. A. 1219 Odden W. 611 Oelkers E. H. 295 Ogawa H. 91 Öhlander B. 311 Ohta K. 91 Orem W. H. 369 Orrell S. E. 493 Ottonello G. 917 Palmer C. D. 1203

Author Index

Panettiere P. 1455 Panichi C. 455 Pattrick R. A. D. 347, 879 Pedersen K. 1035 Pennisi M. 455 Perkins E. H. 1085 Perkins R. B. 1203 Pitsch H. 667 Plyusnina L. P. 777 Poppi L. 1307 Price J. 475 Probst J. L. 865 Pulido-Bosch A. 1053 Ramsey M. H. 567 Ravenscroft P. 403 Reardon E. J. 327 Reddy M. M. 1495 Roberts E. C. Jr. 901 Rodgers K. A. 1121 Rose S. 27 Roychoudhury A. N. 785 Sacchi E. 51 Salminen R. 647 Sánchez-España J. 1265 Saulnier I. 191 Savage K.S. 1219 Schemel L. E. 1003 Schlosser P. 1137 Schmidt A. P. 1317 Schuiling R. D. 1317 Schwenk M. 181 Semhi K. 865 Sheppard D. S. 513 Shevenell L. A. 475 Shiraki R. 265 Siegel D. I. 493 Simmons K. R. 369 Simms P. H. 1245 Simoneit B. R. T. 355, 1169 Small J. S. 1399 Smedley P. L. 737 Smith J. T. 833 St-Arnaud L. 1245 Stecko J. R. P. 753 Stute M. 1137 Suchet P. A. 865 Taiwei C. 133 Taran Y. A. 337

Tempel R. N. 475, 1071 Tiercelin J. J. 355 Tingle T. N. 1219 Thomas R. G. 687 Thornton I. 567 Tobschall H. J. 1369 Tommasini S. 891 Toulhoat P. 667 Toulkeridis T. 1291 Triay I. 1043 Trivedi D. P. 1399 Turci E. 1307 Turi B. !469 Van Cappellen P. 785 Van Loon L. R. 953, 975 van Os B. J. H. 1317 Varajão C. A. C. 245 Vaughan D. J. 879, 1399 Velasco F. 1265 Velinsky D. J. 901 Vernaz E. 1505 Vieillard P. 245 Viladevall M. 281 Vilks P. 1043 Viollier E. 785 Wai W. H. 567 Walderhaug O. 295 Warwick M. S. 425 Waychunas G. A. 1219 Wharton M. J. 347 Williams T. M. 531 Wogelius R. A. 1399 Wolf M. 97, 171, 583, 819, 1191 Xinping L. 117 XiongXin D. 133 Xu G. 1 Xu R. 1439 Yanful E. K. 1245 Yingjie G. 133 Younger P. L. 1383 Yusa Y. 141 Yusta I. 1265 Zeng Y. 13 Zhmud B. V. 425 Zielinski R. A. 369 Zuccolini M. V. 917 Zuppi G. M. 51 Zuyi T. 133





